



Ideal for existing or new construction, HTT Tension ties provide a high strength timber to concrete, or timber to masonry, tension connection



[ETA-07/0285](#), [UK-DoP-e07/0285](#)

FEATURES



Material

Z275 Pre-galvanised mild steel.

Benefits

- Enables a connection to concrete structure.



APPLICATIONS

Connections

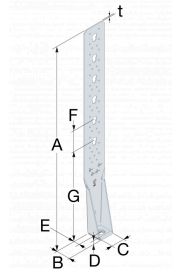
Timber Members

When to Use

- Timber structures which exerted to high uplift forces can be connected to concrete structures with the HTT Hold Down.
- Tension force connection between timber floor joists and masonry walls

TECHNICAL DATA

Product Dimensions



References	Product Dimensions [mm]						Flange A			Flange B		
	A	B	C	D	E	t	Ø4,7	Ø5	Ø21	Ø17,5	Ø18	#25
HTT4	314	60	64	11.4	35	2.8	18	-	-	1	-	-
HTT5	403	56	64	11.4	35	2.8	26	-	-	1	-	-
HTT22	559	62	64	11.4	33	2.8	32	-	-	1	-	-

Capacities

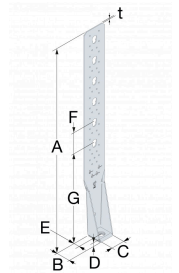
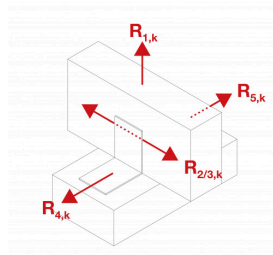
References	Number of Fasteners				Characteristic capacities - Timber C24 to concrete [kN]											
	Joist		Flange B		R _{1,k} (without US50/50/8 washer)								R _{1,k} (with US50/50/8 washer)			
	Qty	Type	Qty	Type	CNA4,0x6	CNA4,0x6	CNA4,0x6	CNA4,0x6	CSA5,0x8	CSA5,0x8	CSA5,0x8	CSA5,0x8	CNA4,0x6	CNA4,0x6	CNA4,0x6	CNA4,0x6
HTT4	n	CNA	1	M16	min [(n-3.5)*15.4; 43/ kmod]	min [(n-3.5)*18.6; 43/ kmod]	min [(n-3.5)*24.7; 43/ kmod]	min [(n-3.5)*31; 43/ kmod]	-	-	-	-	min [(n-3.5)*19.7]	min [(n-3.5)*23.9]	min [(n-3.5)*31.7]	min [(n-3.5)*39.7]
HTT5	n	CNA	1	M16	min [(n-3.5)*15.4; 43/ kmod]	min [(n-3.5)*18.6; 43/ kmod]	min [(n-3.5)*24.7; 43/ kmod]	min [(n-3.5)*31; 43/ kmod]	-	-	-	-	min [(n-3.5)*19.7]	min [(n-3.5)*23.9]	min [(n-3.5)*31.7]	min [(n-3.5)*39.7]
HTT22	n	CNA	1	M16	min [(n-3.5)*15.4; 43/ kmod]	min [(n-3.5)*18.6; 43/ kmod]	min [(n-3.5)*24.7; 43/ kmod]	min [(n-3.5)*31; 43/ kmod]	-	-	-	-	min [(n-3.5)*19.7]	min [(n-3.5)*23.9]	min [(n-3.5)*31.7]	min [(n-3.5)*39.7]

Quantity of fasteners (n) may be chosen by the user. Capacity is then calculated with this number n.

(1) n is equal to 10 a maximum.

(2) 4 CSA5.0x8 must always be installed on the bottom extremity of the oblong holes to reach the capacities given in the table. For other fastener in these 4 holes, the capacity shall be calculated according to ETA.

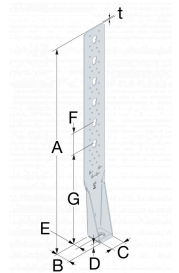
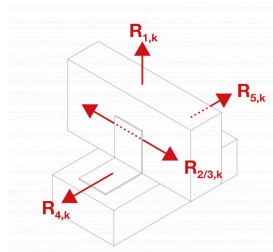
Product capacities - simplified values



References	Product capacities - Timber to Concrete															
	Number of Fasteners				Characteristic capacities - Timber C24 to concrete [kN]											
	Flange A		Flange B		R _{1,k} (without US50/50/8 washer)					R _{1,k} (With US50/50/8 washer)						
	Qty	Type	Qty	Type	CNA4.0x30	CNA4.0x40	CNA4.0x50	CNA4.0x60	CSA5.0x30	CSA5.0x40	CSA5.0x50	CSA5.0x60	CNA4.0x30	CNA4.0x40	CNA4.0x50	CNA4.0x60
HTT4	18	CNA	1	M16	15.4	18.6	24.7	31	-	-	-	-	19.7	23.9	31.7	34.2
HTT5	18	CNA	1	M16	15.4	18.6	24.7	31	-	-	-	-	19.7	23.9	31.7	34.2
HTT22	32	CNA	1	M16	15.4	18.6	24.7	31	-	-	-	-	19.7	23.9	31.7	39.7

Simplified numerical characteristic capacities values are based on load duration and service class assumption (Instantaneous, Service class 2, $k_{mod} = 1.1$). For other load duration, service class and fasteners, please refer to ETA-07/0285.
For HTT31, 4 CSA5.0x50 must always be installed on the bottom extremity of the oblong holes to reach the capacities given in the table. For other fasteners in these holes, the calculation shall be calculated according to ETA.

Product capacities with Zyklop, simplified



References	Product capacities with ZYKT [kN]							Characteristic capacities - Timber C24 to concrete [kN]
	Fastener							
	Flange A				Flange B			
	Qty	Type	Qty	Type	Qty	Type	R _{1,k}	
HTT4	-	-	-	-	-	-	-	
HTT5	-	-	-	-	-	-	-	
HTT22	-	-	-	-	-	-	-	

The capacities for the ZYKT69 are determine for an embendingth length of the screws of the ZYKT of 280 mm. Details of the Zyklop are givne in ETA-07/0317.
The essential CNA / CSA have to be place in the oblong holes (lower side), and for the HTT22E also in the 2 lowermost holes Ø5 mm.
Simplified numerical characteristic capacities values are based on load duration and service class assumption (Instantaneous, Service class 2, $k_{mod} = 1.1$). For other load duration, please refer to ETA-07/0285.

INSTALLATION

Fixing

Fastening into Timber Stud:

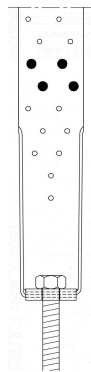
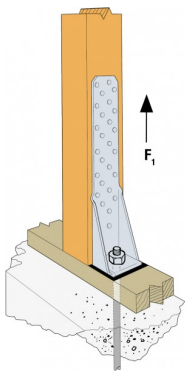
- 4mm CNA Nails
- 5mm CSA Screws

Fastening to the concrete:

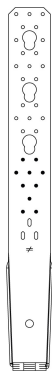
- Mechanical anchors: M16 WA Anchor or BOAX-II
- Chemical anchors: injection mortar SET-XP or AT-HP + M16 threaded rod LMAS

Installation

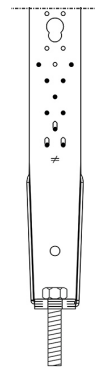
- The connector is mounted with a suitable M16 bolt to the concrete or masonry wall, and the vertical leg is fastened with 4mm CNA Nails, or 5.0mm CSA Screws, to the timber.



For HTT5 these holes must always be filled.



For HTT22E these holes must always be filled



HTT22E Nail pattern